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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/569,230	02/23/2006	Hiroyuki Tajiri	062137	7829

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EXAMINER	
LAU, JONATHAN S	

ART UNIT	PAPER NUMBER
1623	

NOTIFICATION DATE	DELIVERY MODE
05/11/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@whda.com

Office Action Summary	Application No.	Applicant(s)	
	10/569,230	TAJIRI ET AL.	
	Examiner	Art Unit	
	Jonathan S. Lau	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-13* is/are pending in the application.

4a) Of the above claim(s) *8-13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2 pgs / 8 Apr 2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is responsive to Applicant's Amendment and Remarks, filed 1 Feb 2010, in which claim 4 is amended to correct minor informalities.

This application is the national stage entry of PCT/JP04/12219, filed 19 Aug 2004; and claims benefit of foreign priority document JP 2003-301124, filed 26 Aug 2003; currently an English language translation of this foreign priority document has not been made of record.

Claims 1 and 3-13 are pending in the current application. Claims 8-13, drawn to non-elected inventions, are withdrawn. Claims 1 and 3-7 are examined on the merits herein.

The following grounds of rejection are reiterated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osaka Gas Co., Ltd. (Foreign Patent Publication JP 2002-173689, published 21 June 2002, provided by Applicant in IDS mailed 23 Feb 2006), JP '689 herein, in view of JP '044 (Foreign Patent Publication JP 2001-274044, published 05 Oct 2001, provided by Applicant in IDS mailed 23 Feb 2006) and in view of Yata et al. (US Patent 4,753,717, issued 28 Jun 1988, cited in PTO-892) and further in view of Kirk-Othmer (Kirk-Othmer Encyclopedia of Chemical Technology, p1-45, cited in PTO-892). As the publication JP '689 is in Japanese the English-language machine translation is provided (machine translation of JP 2002-173689, of record), and references to JP '689 will be found therein. As the publication JP '044 is in Japanese the English-language machine translation is provided (machine translation of JP 2001-274044, cited in PTO-892), and references to JP '044 will be found therein.

JP '689 teaches a hydrocarbon material with electrical conductivity useful in the electronics industry (page 1, paragraphs 1-2) made from a cellulose-based material such as coconuts or wood flour (page 2, paragraph 9 and page 3, paragraph 14). JP '689 teaches the raw material with a thermal reaction assistant such as zinc chloride added (page 4, paragraph 21). JP '689 teaches a hydrocarbon material made by

thermal reaction, or heat-treating, to give a hydrogen/carbon atomic ratio of 0.05 to 0.5 (page 5, paragraph 25). JP '689 teaches the hydrocarbon material has a specific surface area measured by the BET method of 1800-3000 m^2/g (page 5, paragraph 29). JP '689 teaches the hydrocarbon material has an 8-12 angstrom pore volume determined by the MP method of preferably 0.2-0.8 ml/g (page 6, paragraph 30). The oxygen concentration of a polysaccharide-based material such as wood floor has an empirical formula of CH_2O, or an oxygen concentration of 25% by atomic ratio, or approximately 53% by weight. JP '689 teaches a hydrocarbon material having an oxygen density of 28.1% by weight (page 8, paragraph 48), 26.4% by weight (page 8, paragraph 51), and 18.6% by weight, (page 8, paragraph 53), implicitly teaching the deoxygenation of the polysaccharide-based raw material according to instant claim 3. JP '689 teaches the oxygen density of the raw material is 20% by weight or more and teaches when the oxygen density is too low the desired performance of the product is hard to obtain (page 4, paragraph 19).

JP '689 does not specifically teach a mesopore volume, measured by the BJH method, of 0.02 to 1.2 ml/g (instant claim 1). JP '689 does not specifically teach a bulk density of 0.60 g/mL or higher for an electrode obtained using the hydrocarbon material (instant claim 1).

JP ‘044 teaches teaches an activated hydrocarbon material made in a manner similar to JP '689 (translated paragraph 51, provided by Applicant in IDS mailed 21 Aug 2009), is expected to possess pore volume from both mesopores as measured by the

BJH method of 0.4 or less ml/g and a pores measured by the MP method of 0.4 or more ml/g (page 9, paragraphs 35-37).

Yata et al. teaches a polyacene skeletal structure having open pores and being a heat-treated product of an aromatic condensation polymer containing carbon, hydrogen and oxygen (abstract), or an activated hydrocarbon material, wherein said material is optimized to have an average pore diameter of 10 to 0.03 micrometers and an apparent density of 0.3 to 0.7 g/cm^3 (column 6, lines 10-30). Yata et al. teaches the embodiment having an apparent density of 0.6 g/cm^3 (column 19, lines 55-70).

Kirk-Othmer teaches bulk density is a property of a particulate system including particles and the medium they are contained within, not an inherent property of a material such as material density, and teaches bulk density depends on the method of packing and a system of packed particles can become denser with time and settling process to a limiting value (page 5, section 2.2. Particle Properties, paragraphs 1-2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine JP '689 in view of JP '044 and in view of Yata et al. and further in view of Kirk-Othmer. All of JP '689, JP '044 and Yata et al. are in the field of an activated hydrocarbon material containing a polycyclic aromatic system. Kirk-Othmer is relied on to teach what is well known to one of the level of ordinary skill in the art. JP '689 teaches a total pore volume. JP '044 teaches an activated hydrocarbon material made in a manner similar to JP '689 is expected to possess pores in both the mesopore size and larger pore size. Yata et al. teaches it is known in the art to optimize the size of pores of the activated hydrocarbon material and implicitly teaches pore size is an

average value and therefore expected is exist as a distribution of pore sizes. JP '689 teaches the oxygen density of the raw material is 20% by weight or more and teaches when the oxygen density is too low the desired performance of the product is hard to obtain, providing guidance for one of ordinary skill in the art to optimize the obtained product by performing routine experimentation by using a raw material having an increased oxygen density. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists, and generally differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical, see MPEP 2144.05.

The limitation “a bulk density of 0.60 g/ml or higher for an electrode obtained using the hydrocarbon material” is interpreted as an intended use of the claimed hydrocarbon material, and it is found that the material taught by JP '689 is capable of being used in an electrode having a bulk density of 0.60 g/ml or higher. As taught by Kirk-Othmer, bulk density is a property of a particulate system, not an inherent property of a material, and bulk density depends on the method of packing and a system of packed particles can become denser with time and settling process.

Instant claim 6 recites limitations of the starch-based material, but does not require the polysaccharide-based raw material to be said starch-based material, therefore a hydrocarbon material prepared from a cellulose-based raw material makes obvious instant claim 6.

Response to Applicant’s Remarks:

Applicant's Remarks, filed 1 Feb 2010, have been fully considered and not found to be persuasive.

Applicant notes that JP'044 teaches a "differentiation pore volume of 30 Å (3nm)" distinct from pore volume V at page 9, paragraph 36. For a clearer understanding of how the terms are defined to one of ordinary skill in the art, Barret et al. (J. Am. Chem. Soc., 1951, 73, p373-380, cited in PTO-892) as referenced at page 9, paragraph 36 of JP'044 is made of record herein. Barret et al. discusses techniques for estimating volume and area of porous adsorbents (page 373, left column, paragraph 1 and page 380, right column, section Summary) as indicated in JP'044. Barret et al. discusses the technique for measuring volume of adsorbed gas relative to pore size by determining the differential ΔV (adsorbed volume) with respect to Δr (pore radius) (page 379, left column, figure 7 at top of left column and figure 8 at bottom of right column). Barret et al. discusses this method is applicable to measure the volume of gas that can by adsorbed by materials having a pore size below 40 Å, or volume of gas that is adsorbed by mesopores, and as shown in figure 7 the method can be used to determine volume of gas that is adsorbed by mesopores distinguished from pores of other size illustrated by the graphing of ΔV (adsorbed volume) with respect to Δr (pore radius). Further, ΔV is in units of CC/g, or ml/g, whereas Δr is in units of Å. JP'044 at page 9, paragraph 35 discloses "the differentiation pore volume of 30 A by the BJH method is 0.4 or less **ml/g**." (emphasis added) Based on how one of ordinary skill in the art at the time of the invention, understanding the BJH method disclosed by Barret et al., would interpret JP'044, it is concluded that the **differentiation** pore volume refers to the BJH method,

and the pore volume of 30 A in units of ml/g would be understood to be the volume of gas that is adsorbed by mesopores, or mesopore volume.

Applicant provides in the IDS mailed 8 Apr 2010 the European Search Report. Applicant provides a table comparing the instant invention with the material taught by JP'689 and JP'044. Applicants note that the material of JP'044 is used in comparative examples 2 and 3 of the instant application. However, as recited above, the limitation "a bulk density of 0.60 g/ml or higher for an electrode obtained using the hydrocarbon material" is interpreted as an intended use of the claimed hydrocarbon material, and it is found that the material taught by JP '689 is capable of being used in an electrode having a bulk density of 0.60 g/ml or higher. As taught by Kirk-Othmer, bulk density is a property of a particulate system, not an inherent property of a material, and bulk density depends on the method of packing and a system of packed particles can become denser with time and settling process. It is reiterated that the instant invention is drawn to said hydrocarbon material, and not to said electrode. Applicants have provided no evidence that the material of JP'044 can't be used to make an electrode having a bulk density of 0.60 g/ml or higher, and Kirk-Othmer teaches this property can be changed by the method of packing and settling processes.

Therefore this rejection is maintained and made **FINAL**.

Conclusion

No claim is found to be allowable.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan S. Lau whose telephone number is 571-270-3531. The examiner can normally be reached on Monday - Thursday, 9 am - 4 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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